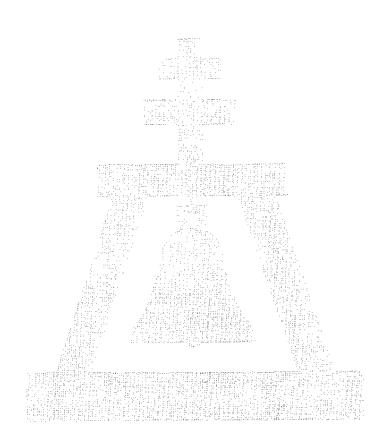
Subdivision Code Figure B – Standard Drawings for Construction – Excerpts

STANDARD DRAWINGS FOR CONSTRUCTION



CITY OF RIVERSIDE DEPARTMENT OF PUBLIC WORKS

SUPPLEMENTAL NOTES TO THE CITY OF RIVERSIDE STANDARD DRAWINGS

NO PERSON SHALL PERFORM ANY CONSTRUCTION ACTIVITY OR SHALL INSTALL ANY OBJECTS WITHIN THE PUBLIC RIGHTS OF WAY OR PUBLIC EASEMENTS OF THE CITY OF RIVERSIDE WITHOUT A VALID CONSTRUCTION PERMIT OR, A STREET OPENING PERMIT OR, AN ENCROACHMENT PERMIT, ISSUED BY THE PUBLIC WORKS DEPARTMENT OF THE CITY OF RIVERSIDE.

CONSTRUCTION OF THE IMPROVEMENTS SHOWN IN THESE STANDARD DRAWINGS (EXCLUDING STANDARD DRAWINGS NO. 600 THROUGH NO. 699) SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION ("GREENBOOK"), EXCEPT FOR THE FOLLOWING MODIFICATIONS (THE MODIFICATIONS FOLLOW THE FORMAT OF THE GREENBOOK).

PART 1

GENERAL PROVISIONS

1-2 DEFINITIONS

Agency

The City of Riverside.

Base Course

Layers of pavement placed between the surface course and the

subgrade.

Board

The City Council of the City of Riverside.

House Connection Sewer

Sewer lateral.

Inspector

The representative of the Engineer who is assigned to inspect conformance of the work with the City's requirements and

construction plans and specifications.

Open Graded A.C. (OGAC)

A thin layer of special asphalt concrete placed on a surface course or existing pavement to improve the surface conformation and friction factor. OGAC shall conform to the State Standard

Specifications.

Overlay

A supplemental surface course placed on an existing pavement to improve its surface conformation or increase its strength.

Private Engineer

(If applicable) The engineer who has prepared and has signed the

plan.

Standard Plans

Standard Drawings

Surface Course

The top layer of pavement (exclusive of OGAC), designed to

provide structural values and a surface resistant to traffic abrasion.

Traveled Way

That portion of the roadway reserved for the movement of vehicles for the general public, exclusive of shoulders and auxiliary lanes. Where traffic has been diverted or restricted to certain lanes, with the approval of the Traffic Engineer, these diversions or restricted lanes become the traveled way.

Right-of-way

Includes City of Riverside Public rights-of-way and easements.

1-3 ABBREVIATIONS

Aband

Abandoned

ARSAT

Asphalt - Rubber Stress Absorbing Treatment

DGAC

Dense Graded Asphalt Concrete Open Graded Asphalt Concrete

OGAC R & R

Remove and Replace

The abbreviations shown on Standard Drawing No. 2 may also apply.

1-5 SYMBOLS

The symbols shown on Standard Drawing No. 1 may also apply.

6-3 SUSPENSION OF WORK

Add Section 6-3.3 as follows:

6-3.3 Stage III Smog Episode. No work shall be done on a day for which a Stage III smog episode is forecast as defined by the Air Quality Management District (AQMD). The Contractor will not be entitled to any delay damages for such a suspension, but an automatic time extension will be granted. When the AQMD predicts that a Stage III episode level will be reached the following day, an announcement containing the specifics will generally be provided by 2:00 p.m. on the day the prediction is made.

7-10.4.2 Use of Explosives. If explosives are to be used, the Contractor, in addition to meeting the other requirements of this section, shall obtain a blasting permit from the City of Riverside Fire Department and shall give four-days notice to the Engineer and the Fire Department prior to any blasting.

PART 2

CONSTRUCTION MATERIALS

201-1 PORTLAND CEMENT CONCRETE

201-1.4.4 Hand Mixing. Hand mixed concrete shall not be allowed.

203-6 ASPHALT CONCRETE

203-6.9 Asphalt Types for Various Uses. The materials listed below shall be used unless otherwise specified.

Blast furnace or steel slag is not acceptable as an aggregate in asphalt concrete.

TYPE		USE
B-AR-4000	-	Base course for streets
C2-AR-4000	•	Base course for alleys and trench resurfacing; Base course for streets with grades over 10%; Surface course for streets, alleys and trenches
D2-AR-16000	-	Berm
E-AR-4000	-	Hand raking in inaccessible areas and feather-edging
D2-AR-4000	-	Overlay less than 1" thick.

207 PIPE

207-1.1.7 Alternate Pipe for Sanitary Sewers. As an alternate to the vitrified clay pipe (VCP) specified on the plans, contractors may use, at their option, any plastic pipe described and specified in the Standard Specifications for Public Works Construction, except that plastic pipe shall be limited to use in areas that are predominantly residential and to sizes not exceeding 15 inches in diameter.

PART 3

CONSTRUCTION METHODS

300-1.3 Removal and disposal of material

300-1.3.1. General. The Contractor is responsible for the proper disposal of any construction debris and any surplus excavation material.

300-1.3.2. Requirements.

- (b) Concrete Pavement. Add the following sentence to this section: "When trenching in concrete pavement, the concrete pavement shall be removed on each side of the trench by one additional foot."
- (c) Concrete Curbs, Walks, Gutters, Cross Gutters, Driveways and Alley Intersections.
- 1. Curb or Curb and Gutter. Curb or curb and gutter section to be replaced shall not be less than 5 feet in length. All saw cuts will be at right angles to the alignment of the curb or curb and gutter. Where curb or curb and gutter are on a curve, the saw cut will be on a radial line. If the saw cut would fall within one foot of a construction joint, expansion joint, weakened plane joint, or score mark, the cut shall be made on the joint or the mark. The curb or curb and gutter shall not be cut in a place that would leave a piece less than 5 feet in length.

- 2. Sidewalks. No section of sidewalk to be replaced shall be less than 25 square feet in size. The length of the sidewalk to be replaced shall be equal to the width. Where the sidewalk exceeds 8 feet in width, the minimum length shall be 4 feet. The exception to the above is when a section of sidewalk is removed for the installation of anything that requires a concrete foundation or a fire hydrant. The size of this section shall not exceed one-half the width of the sidewalk and shall be square. When the alignment of the sidewalk is on a curve, the saw cut shall be on a radial line; if the saw cut would fall within one foot of a construction joint, expansion joint, weakened plane joint, or score mark, the cut shall be made on the joint or mark. The sidewalk shall not be cut in a place that would leave a piece of sidewalk less than 25 square feet in size.
- 3. Driveway Approaches. Driveway approaches shall only be saw cut at right angles to the curb alignment or on a radial line where the curb alignment is on a curve. The minimum length of section to be replaced or section that will remain shall be one-half of the difference between dimensions "A" and "B" plus 5 feet. This length shall be measured the same as "B" dimension. The curb and gutter shall be cut and replaced as curb and gutter on all types of driveway approaches with a minimum length of one-half the "B" dimension.
- 4. Cross Gutters. Cross gutters shall only be saw cut at right angles to the cross gutter and shall extend the full width of the cross gutter. The section to be removed or the section to remain in place shall not be less than 10 linear feet in length.

The saw cutting of the spandrel will be as directed in the field or as shown on the plans.

302-5 ASPHALT CONCRETE PAVEMENT

302-5.5 Distribution and Spreading. On street widenings, if the width of asphaltic concrete to be placed is 8 feet or less and/or the project length is not more than 150 feet, the Contractor, with the approval of the Engineer, may use a spreader box.

If approved on the plan, an asphalt concrete base course may be laid in one lift to a maximum compacted thickness of 6".

Contractors shall not start paving operations after 3:00 p.m. without permission from the Engineer.

On street widening projects where new paving joins the existing paving, the Contractor shall overlay existing paving as shown on the plans or as directed by the City to produce a smooth crown section.

302-5.6 Rolling. For deep lift asphalt laid more than 4" thick, excepting paving replacement on trenches, rollers shall not weigh less than 10 tons. For asphalt patches or resurfacing of trenches 2 feet wide or less and 100 feet maximum long, 3 ton rollers are allowed.

302-9 FOG SEAL

Over all newly laid asphalt concrete paving, the Contractor shall apply a seal coat of emulsified asphalt SS-lh as per section 203-3 of the Standard Specifications. Rate of application shall be approximately 0.10 gallons per square yard or as directed by the Engineer.

303-5 CONCRETE CURBS, WALKS, GUTTERS, CROSS GUTTERS, DRIVEWAYS, ACCESS RAMPS AND ALLEY INTERSECTIONS

303-5.1.3 Driveway entrances. Unless otherwise specified on the plans or by the Engineer, driveway approaches and alley approaches shall be constructed in accordance with Standard Drawing No. 302.

If a new driveway approach is to connect to an existing curb and gutter, or when an existing curb depression is to be replaced with a full curb face curb, construction shall be performed in accordance with Standard Drawing No. 303. Horizontal sawing of curbs is allowed with prior approval of the Engineer.

Alley approaches which are to drain an alley more than 50 feet long shall have the back of the alley approach at its center depressed by 0.25 feet to accept drainage.

303-5.5.2 Curb. Application of class "B" mortar to face of curb is not required. Stamping of Contractor's name and the year into the curb shall not be done.

When a straight edge ten (10) feet long is laid on the top or face of the curb or on the surface of the gutters, the surface shall not vary more than one-eighth (1/8) inch from the edge of the straight edge; except at grade changes or curves.

303-5.10 Rejection of New Construction. The following shall be cause for rejection and subsequent replacement:

- 1. Transverse cracks through the curb and gutter, exceeding 0.01' in width at any point.
- 2. Vertical displacement exceeding 0.01', or which causes water to pond in the gutter for a distance exceeding 2'.
- 3. Serious or extensive surface imperfections which would cause the possibility of tripping.
- 4. Transverse cracks causing 5' or less of the curb and gutter to be "floating," or unattached to other curb and gutter. If the crack is in a driveway depression, remove one-half of dimension "B."
- 5. Cracks causing 25 square feet or less of the sidewalks, approaches, cross gutters, or aprons to be "floating," or unattached to other approaches, cross gutters or aprons.

Rejected concrete work shall be removed by means of a saw cut at a score line. If no score line exists, the minimum removed area or unscored area left in place shall be 25 square feet and the minimum width shall be 4 feet or the full width of the sidewalk.

306-1. OPEN TRENCH OPERATIONS

Unless otherwise specified on the plans, plastic pipe shall be bedded as follows:

Type of Pipe	Depth of Cover Above Bedding	Bedding
Solid wall (ABS & PVC)	0' to 4'	Case III
,	4' to 17'	Case I
	17' to 30'	Case II
	over 30'	Special Design
ABS and PVC Composite	less than 4'	Case III
•	4' to 9'	Case I
	9' to 21'	Case I
	21' to 30'	Case II N=D'+1"
	over 30'	Special Design

When the Contractor selects the option of installing plastic pipe, such option shall apply to a minimum reach of the sewer between any two manholes and shall include the house connections' sewer in that reach.

306-1.1.7 Excavations Adjacent to Street Trees. The following specifications are to be adhered to when excavating adjacent to street trees in the City of Riverside. Any exceptions to these requirements must be approved by the park and recreation Department. (Chapter 15.08.020, Riverside Municipal Code.)

No excavation shall take place within the following specified distances from the perimeter of trees at ground level:

Tree Size	<u>Clearance</u>	<u>Tree Size</u>	<u>Clearance</u>
Paim trees	1.5 feet	13-24 inches diameter	4-1/2 feet
0-6 inches diameter	3.0 feet	25-36 inches diameter	5.0 feet
7-12 inches diameter	3-1/2 feet	37 inches and up	6.0 feet

Tunneling is permitted if it is not through the center of the tree and at a depth that will not destroy the anchor roots of the tree. Where it is necessary to excavate adjacent to existing trees, the Contractor shall avoid injury to trees and tree roots. Excavation in areas where 2-inch and larger roots occur shall be done by hand. All roots 2 inches and larger in diameter shall be tunneled under and shall be heavily wrapped with wet burlap to prevent scarring or drying. Where trenching machine is run close to trees having roots smaller than 2 inches in diameter, the wall of the trench adjacent to the tree shall be hand trimmed, making a clean cut through the roots. Any tree roots 1 inch and larger in diameter shall be painted with two coats of a tree seal or approved equal. Trenches adjacent to trees shall be closed within 24 hours. No dirt can be piled up against a street tree without a protective separator such as lumber, plywood, etc. The protective separator shall not be nailed to the street tree. The party responsible for any damage to a street tree will be billed in accordance with the Riverside Municipal Code.

306-1.3 Backfill and Densification. Trench backfill shall be per Std. Dwg. No. 453.

- 306-1.3.2 Mechanically Compacted Backfill. Impact type pavement breakers (stompers) will be permitted over clay, asbestos cement, cast iron or non-reinforced concrete pipe only after a minimum of four feet of backfill over the top of pipe has been placed and compacted by other means.
 - 306-1.3.9 Backfill in Easements. Backfill shall comply with same requirements as backfill in streets.
- 306-1.5.1 Temporary Resurfacing. Except as otherwise provided by the plans or approved by the Engineer, not more than 30 days shall elapse between the placement of temporary resurfacing and its removal and replacement with permanent resurfacing

306-7 CURB DRAINS

306-7.1 General. Two 30" long reinforcing bars, No. 3 or larger, shall be embedded in the curb, centered over the drain. ABS pipe is not allowed.

SECTION 313 - STREET NAME AND PERMANENT TRAFFIC CONTROL SIGNS

Traffic control signs and posts shall be installed in accordance with Standard Drawings No. 662 and No. 666.

STANDARD DETAIL DRAWINGS

DEPARTMENT OF PUBLIC WORKS

NUMBER	TITLE	LATEST REVISION DATE
GENERAL		
1 2 3	Symbols (2 sheets) Abbreviations Shading Standard	6/12/86 7/30/85 4/23/84
STREETS		
101 102 103 104	Standard Street Dimensions Cul-de-sac Cul-de-sac (Industrial) Standard Knuckle	9/25/86 7/13/78 7/25/74 6/12/86
110 111 115 116	Alley Sections Class I Bikeway Alley Turnaround Right Angle Alley Turn	7/13/78 7/7/82 6/12/86 7/13/78
120 121 122 123	Intersection Layout Median Openings Reverse Taper Parabolic Flare	2/27/97 10/15/78 9/22/72 1/22/80
180	Barricade for Dead End Streets	6/12/86
200	Curb and Gutter	6/12/86
210	Curb Transitions	8/3/78
220 221	Cross Gutters Slotted Cross Gutters	11/9/82 7/13/78
250	Asphalt Concrete Berms	7/7/82
301 302 303 304 325 326 380	Area Covered by Permit for Driveway Approach (2 sheets) Driveway Approaches (2 sheets) Driveway and Curb Depression (Existing Curb & Gutter) Wheelchair Ramps (3 sheets) Sidewalk Tree Wells and Covers Chain Link Fence (2 sheets)	2/24/70 9/10/97 8/2/78 2/27/97 4/23/84 8/3/78 12/27/84

STANDARD DETAIL DRAWINGS

DEPARTMENT OF PUBLIC WORKS

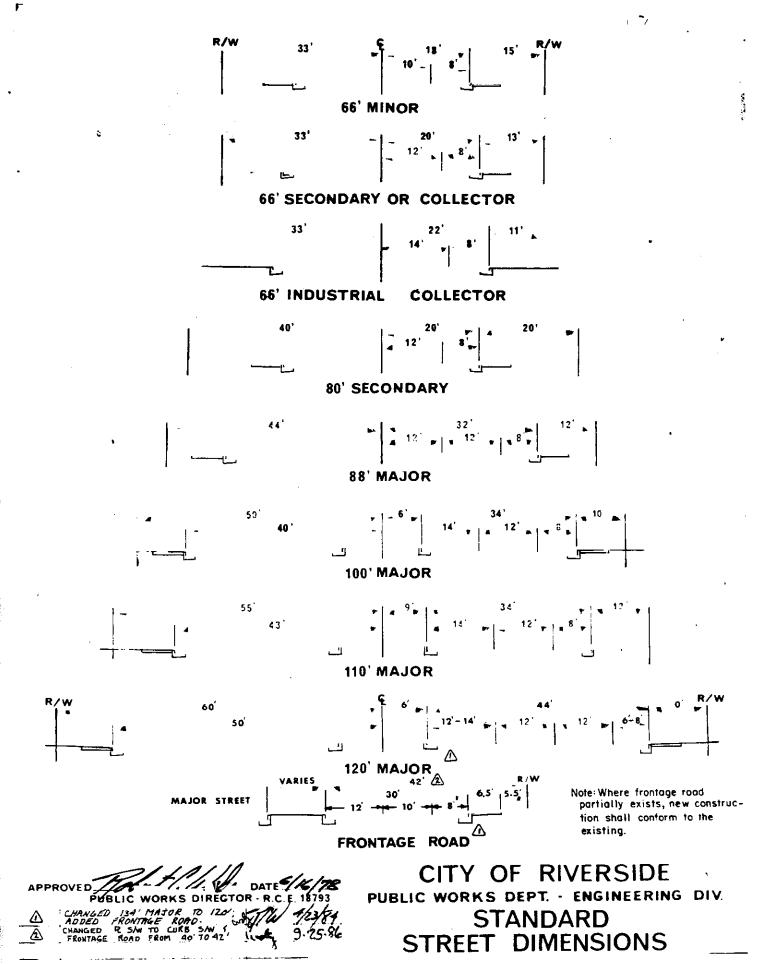
NUMBER	TITLE	LATEST REVISION DATE
DRAINS		
400	Catch Basin Type 1 (back of curb)	7/7/82
401	Catch Basin Type 2 (2 sheets)	4/23/84
402	Catch Basin Inlet	3/7/83
403	Catch Basin Inlet Steel Plate Alternate	8/3/78
404	Catch Basin Outlet Transition Structure (2 sheets)	7/14/78
405	Catch Basin (2 sheets)	10/27/80
406	Catch Basin (2 sheets)	4/23/84
407	Catch Basin (2 sheets)	7/7/82
408	Catch Basin (2 sheets)	7/7/82
409	Catch Basin (2 sheets)	7/7/82
410	Curb Outlet (2 sheets)	7/7/82
411	Under sidewalk Drain	12/27/8 4
412	C.S.P. Inlet	10/26/82
421	Junction Structure B (2 sheets)	12/23/86
422	Junction Structure C (3 sheets)	12/23/86
423	Junction Structure No. 4 (2 sheets)	11/9/82
424	Concrete Collar (Pipes 12"-66")	11/9/82
425	Cleanout Box	4/23/84
430	Manhole AX (2 sheets)	7/7/82
431	Manhole EZ (2 sheets)	10/7/83
432	Manhole JM (3 sheets)	12/23/86
450	Catch Basin Frame and Cover (Replacements only)	4/23/84
451	Concrete Rings, Reducer and Pipe for Manhole Shaft (2 sheets)	7/7/82
452	Standard Pipe Beddings (Storm Drains and Sewers) (2 sheets)	12/23/86
453	Trench Backfill (2 sheets)	7/28/92
456	Timber Bulkhead	8/2/78
SEWERS		
500	Precast Concrete Sewer Manhole	2/27/97
503	Drop Only to Existing Manhole	6/12/86
554	Remodeling Details for Sewer Laterals (2 sheets)	6/28/78
560	Cleanout	10/26/82
561	Chimney Pipe	7/14/78
562	V.C.P. Sewer Lateral	9/25/86
562A	Sewer Lateral with PL C.O.	2/27/97
564	Sewer Pipe Encasement Across Trenches	7/13/78

STANDARD DETAIL DRAWINGS

DEPARTMENT OF PUBLIC WORKS

NUMBER	TITLE	LATEST REVISION DATE
TRAFFIC AND I	PARKING	
600	Standard Symbols - Signals and Lighting	7/17/69
606	Pull Box	3/2/70
612	Electrical Service Detail - Overhead Riser	8/25/80
634	Lighting Standard Foundation (square) - Parking Lots	4/5/83
635	Lighting Standard Foundation (round) - Parking Lots	4/5/83
650	Steel Guard Rail (beam type) - See Std. 180 for steel beam barricade	6/23/70
658	Construction Signs	5/18/70
662A	Street Name Signs	5/28/85
662B	Internally Illuminated Street Name Signs	10/22/84
665	Signs and Markers	6/28/82
666	Traffic Control Signs for Developers (2 sheets)	2/2/87
667	Electrical Service Details - Underground, Signals and Lighting (2 Sheets)	10/10/74
668	Sign Mounting Detail for Traffic Signal Framework	4/26/71
669	Wiring Diagram for Internally Illuminated Street Name Signs	4/3/75
662 MISCELLANEOUS	Street Name Signs	4/17/90
704	Concrete Block Wall (2 sheets)	10/7/83
707	Retaining Wall	11/16/66
708	Retaining Wall	11/16/66
740	Private Sewage Disposal Structures	7/14/78
742	Island Sink Plumbing Detail	7/14/78
DATE:		

RE/3P/Ek 01/30/87



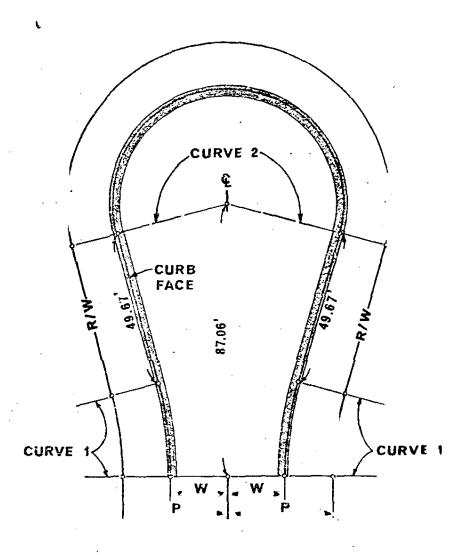
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STANDARD DRAWING NO.

APPR. DATE

MARK

REVISIONS



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			E 1					AREA								
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18'	115'	15°	15.14	30.11	36'	210°	131.95	5,99i	30'	103'	15°	13,56	26.97	48	210	175.93
20'	113'	15°	14.88	29.58	38'	210°	139.28	5,991 6,667	33'	100'	15°	13.17	24.18	81"	216	186.93

NOTE:

⚠ An offset cul-de-sac may be used at the option of the developer. . And | | of curve 1 and curve 2 and the tangent curb line distance to be water tained for an offset cul-de-sac.

revised_note

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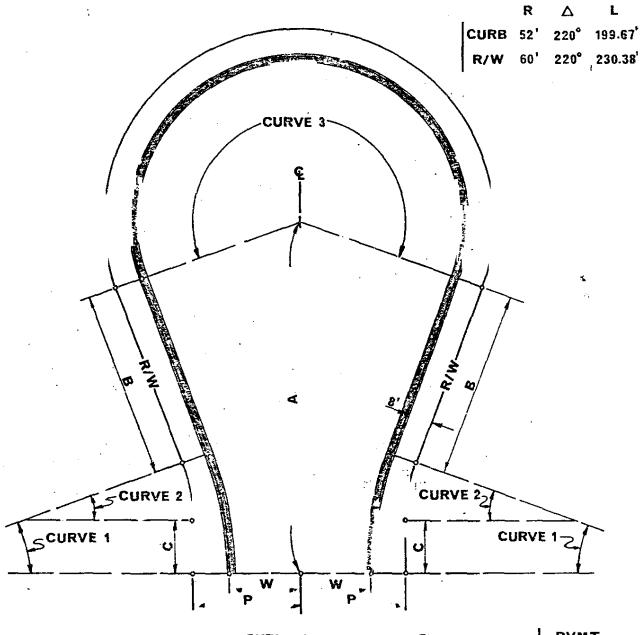
CITY OF RIVERSIDE PUBLIC WORKS DEPT . ENGINEERING DIV.

CUL-DE-SAC

STANDARD DRAWING NO.







						CU	RVE 1			CUR	VE 2	1	PVMT
w	Р	AA	B	c	R	Δ	т	L	R	Δ	т	اگا	PVMT AREA S.F.
													11,534
22'	33'	110.99	59.15	17.021	110'	20°	19.40	38.40'	52.24	20°	9.21	18.24	11,494

POBLIC WORKS DIRECTOR - R.C.E. 8134

(Corrected kingth A(W.20') curve 2 kingth L (W=20', W=22')

MARK

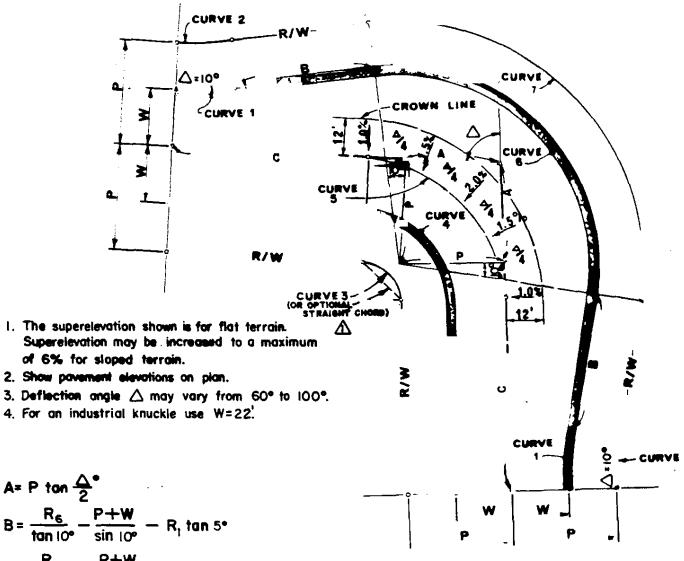
STANDARD DRAWING NO.

RIVERSIDE

PUBLIC WORKS DEPT. - ENGINEERING DIV.

INDUSTRIAL CUL-DE-SAC

, APPR. DATE REVISIONS



$$B = \frac{R_6}{\tan 10^{\circ}} - \frac{P + W}{\sin 10^{\circ}} - R_1 \tan 5^{\circ}$$

$$C = \frac{R_6}{\sin 10^{\circ}} - \frac{P + W}{\tan 10^{\circ}} + R_1 \tan 5^{\circ}$$

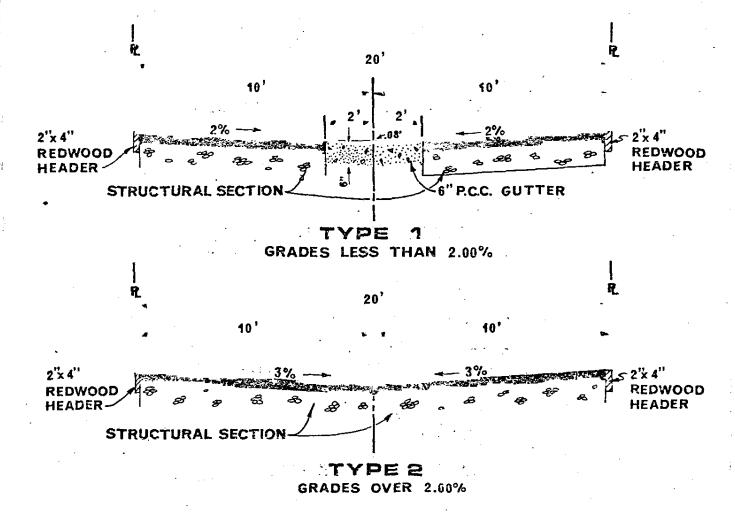
100°>4>75° 75°>4>65° 65°>4>60° R₃ R₄ R₅ R₅ R₃ R₄ R, R, R_3 R_{A} R₅ R_6 R₇ 60.78 45 30 20 76.47 42 50 73 59.47 30 45 76 43.50 70.80 33 20 31.9B 59.46 39 50 76 42.19 72.11

Supersedes previous Std Dwg 104 ADDED OPTIONAL CHORD way 6.12.86

RIVERSIDE PUBLIC WORKS DEPT. - ENGINEERING DIV.

STANDARD KNUCKLE

STANDARD DRAWING NO



NOTES:

- 1. Alley width can be reduced in case of existing substandard right-of-way.
- 2. Cross fall may be adjusted to meet existing improvements (1% min.)
- Redwood Headers required at edge of A.C. wherever edge is not protected by other structural materials, such as existing pavement, concrete, etc.
- ⚠ 4. Concrete for valley gutter shall be Class 520-C-2500.
 - 5. Structural section shall be as shown on plan (T.1.=5.)
 - 6. Weakened plane joints shall be constructed in valley gutter at 10' intervals.

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CITY OF RIVERSIDE PUBLIC WORKS DEPT. - ENGINEERING DIV.

ALLEY SECTIONS

STANDARD DRAWING NO.

SEE NOTE NO. 2

2½" A.C. ON NATIVE SOIL COMPACTED TO 90% RELATIVE COMPACTION

NOTES:

- Cross slopes and longitudinal slopes shall be as directed by the Engineer and in such a manner
 as to provide for adequate drainage and smooth riding characteristics. Cross slope shall not be less
 than 2% nor more than 5%.
- 2. The minimum width of the bikeway shall be 8 for a two-way __bikeway and 5' for a one-way bikeway unless otherwise shown on plans.
- 3. Location and alignment of bikeway shall be as shown on plans.
- 4. All tree limbs overhanging the bikeway and less than 8' above the bikeway shall be trimmed back as directed by the Engineer. Minimum lateral clearence to obstructions shall be 3'.
- 5. Asphaltic Concrete shall be Class D2-AR-4000.
- _6. Prior to placing asphaltic concrete, apply an approved herbicide, rate of application per manufacturers _recommendations.

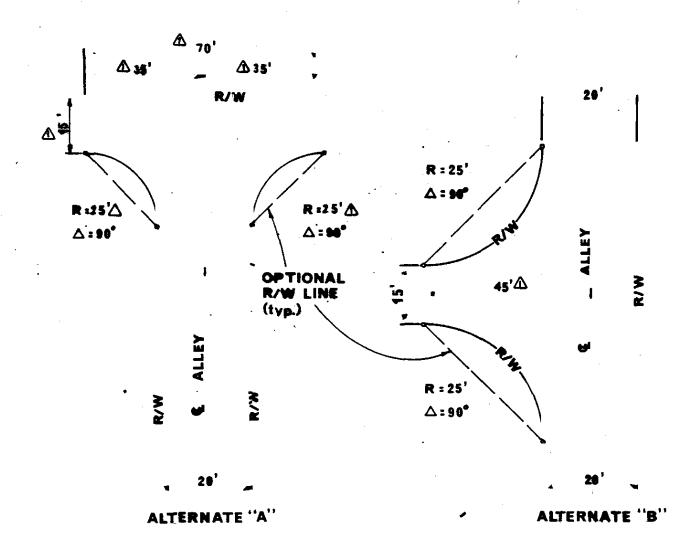
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	CHANGED CLASS NAME		7.7.2
MARK	REVISIONS	APPR.	DATE

CITY OF RIVERSIDE PUBLIC WORKS DEPT. - ENGINEERING DIV.

CLASS I BIKEWAY

STANDARD DRAWING NO.

111



NOTES:

- 1. The Engineer has the option of using either alternate.
- 2. Pave entire right-of-way per Standard Drawing No. 110.
- 3. The Engineer may use optional Right-of-way lines as shown for each alternate.

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CITY OF RIVERSIDE PUBLIC WORKS DEPT. - ENGINEERING DIV.

ALLEY TURNAROUND

STANDARD DRAWING NO.